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COMBAT AIR POWER

Joint Mission Assessments
Needed Before Making
Program and Budget
Decisions

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Mr. Chairman and Members of the Subcommittees:

I am pleased to be here today to discuss the challenges that the Department of Defense (DOD) faces in ensuring effective combat air power capabilities for the future. My testimony is based on a comprehensive report of the major issues related to U.S. combat air power that we expect to issue in September. This report will synthesize the findings from our reviews of six key air power mission areas¹ conducted over the past 2 years and other recent reviews of individual weapon systems. The overall objective of our work was to determine whether the Secretary of Defense has sufficient information from a joint perspective to help him decide whether new air power investments should be made, whether programmed investments should continue to be funded, and what priority should be given to competing programs. To provide context for this assessment, we examined major changes in U.S. air power capabilities since the Persian Gulf War in relation to those of potential adversaries.

Today, I would like to make four points based on our work:

1. Although U.S. aircraft inventories have declined since the Gulf War, DOD has added many new aircraft to its fleet and has qualitatively improved the capabilities of its remaining aircraft and other air power assets. As a result, DOD's current force remains highly capable and is more capable in many areas than the larger Cold War force.
2. With the end of the Cold War, U.S. forces may face potential adversaries far less capable than the former Soviet Union. These nations' forces are considerably smaller, older, and less capable than U.S. forces, and information suggests that they are likely to be slow to improve their capabilities. And, while isolated terrorist actions cannot be ruled out, DOD believes that it is unlikely that these nations could prevent U.S. forces from achieving their objectives in a military engagement.
3. As the nation attempts to achieve a balanced budget, DOD faces a major challenge in seeking to finance all of its combat air power investment programs. At the same time, our work shows that some programs would only marginally improve existing capabilities at a very high cost. Others may no longer be needed in view of the changed security environment. And, for some programs, less costly alternatives could be pursued to meet identified needs.

¹These include interdiction, air superiority, close support, air refueling, suppression of enemy air defenses, and surveillance and reconnaissance.

4. Our work suggests that DOD is proceeding with major air power programs without having sufficiently assessed its joint mission requirements to meet post-Cold War needs. Without such assessments, the Secretary of Defense does not have the information needed to render accurate assessments of the need for and priority of planned investment programs.

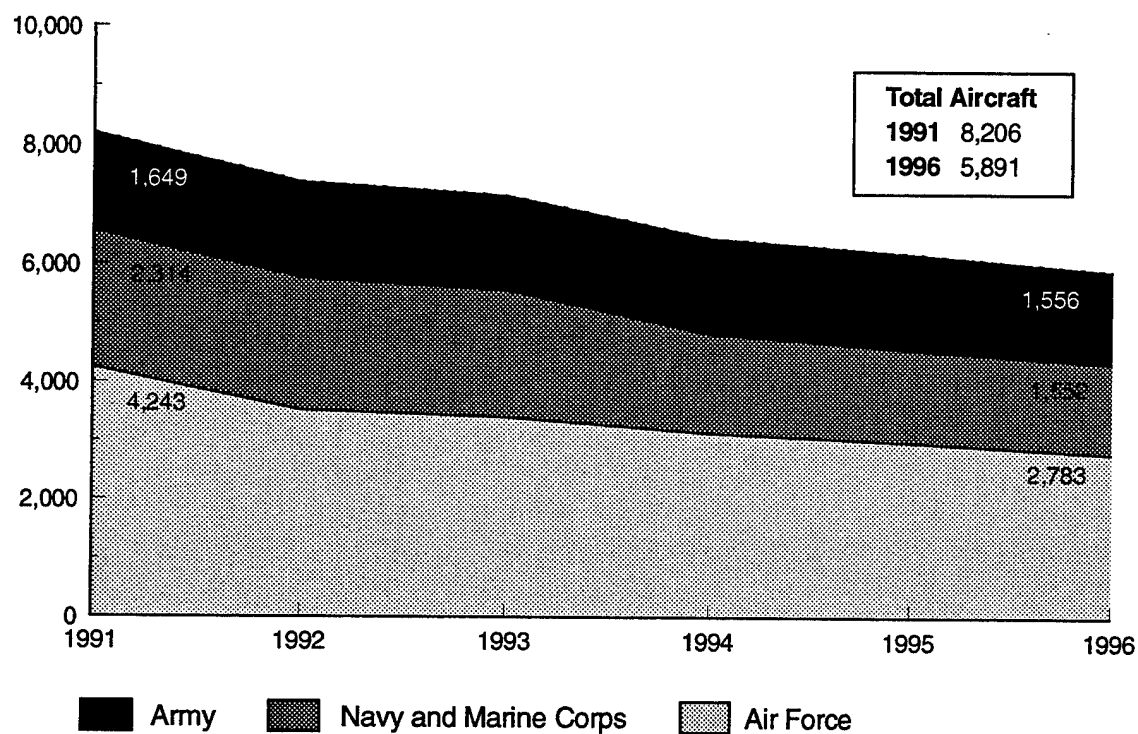
I would like to elaborate on each of these issues. But before I begin, I must tell you that to keep my testimony unclassified, I will be more general than I would prefer. This is particularly true in my discussion of the capabilities of potential adversaries. Also, although our comprehensive report defines U.S. air power more broadly, my testimony today will focus primarily on fighter and attack aircraft, attack helicopters, bombers, munitions employed by combat aircraft, and long-range missiles.

Although Smaller, Current U.S. Air Power Forces Remain Highly Capable

Despite downsizing, U.S. forces remain highly capable. While DOD has reduced its number of combat aircraft, it has retired some older aircraft while adding new aircraft and enhancing the capabilities of existing aircraft. These actions have yielded a force that, in many areas, is more capable than the larger Cold War force.

DOD's total inventory of combat aircraft has declined from about 8,200 in 1991 to about 5,900 in 1996 as shown in the following chart. The quantities shown include aircraft designated for operational missions as well as aircraft set aside for testing and training.

GAO Changes in DOD's Inventory of Fighter and Attack Aircraft, Attack Helicopters, and Bombers, 1991-96



Source: Departments of the Army, Navy, and Air Force.

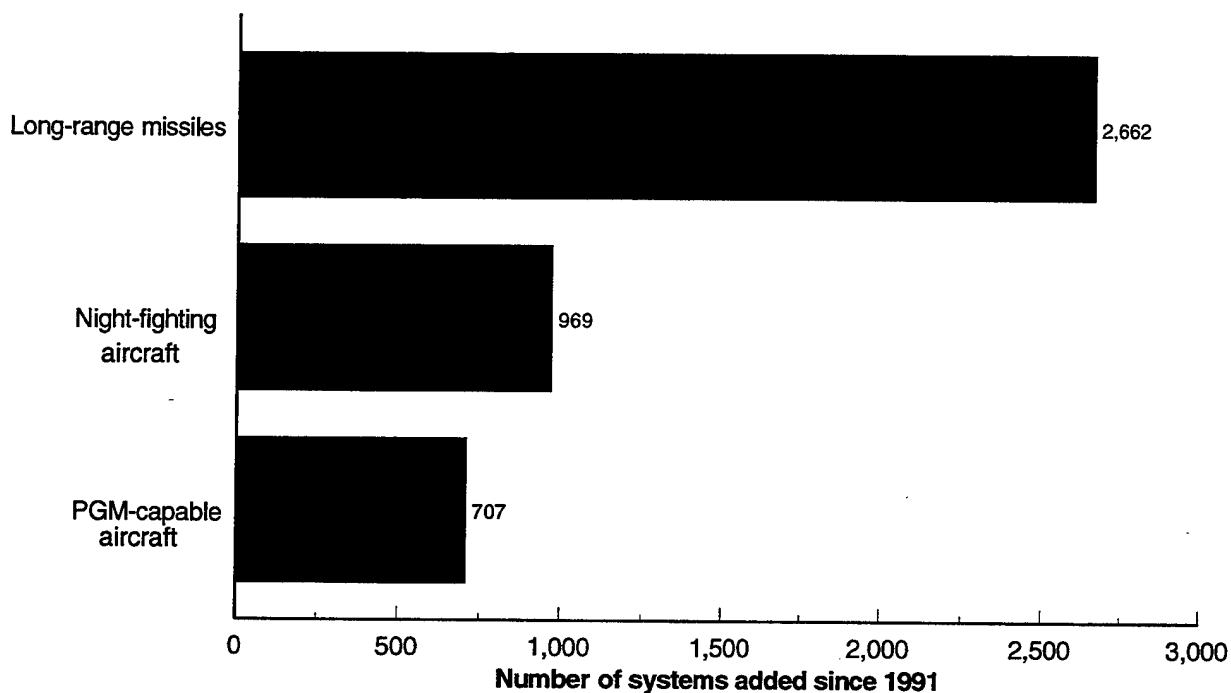
Air Force, Navy, and Marine Corps fixed-wing fighter and attack aircraft have been reduced the most—from about 6,200 in 1991 to about 4,100 in 1996. The services have achieved these reductions primarily by retiring older aircraft that have been costly to operate and maintain. At the same time, they have added many newer model aircraft—about 70 F-15E strike fighters, about 250 F-16 multi-mission fighters, and about 200 F/A-18

fighter and attack aircraft. These assets have bolstered U.S. combat air capabilities.

The total number of attack helicopters has only declined by 79. This smaller reduction is due to the fact that although 600 older AH-1 Cobras were retired, both the Army and the Navy have added newer more capable helicopters. These include about 150 Apache attack helicopters and 300 OH-58D Kiowa Warrior armed reconnaissance helicopters in the Army and about 70 Cobras in the Marine Corps.

Although DOD now has fewer aircraft, many of the aircraft being retained have been qualitatively improved. For example, DOD has improved the navigation, night fighting, target acquisition, and self-protection capabilities of many aircraft and has made more aircraft capable of delivering advanced munitions. These were capabilities that contributed significantly to the effectiveness of tactical aircraft in the Gulf War. DOD is also substantially increasing its inventory of long-range missiles and precision-guided munitions (PGM). It is presumed that the growth in PGMS could reduce the number of flights and aircraft needed to destroy designated targets. The following chart shows the added capabilities in these areas since 1991.

GAO Increases in Key Combat Air Capabilities Since 1991



Note: Long-range missiles include the Tomahawk cruise missile and the Army Tactical Missile System. Night-fighting aircraft includes those designed to permit use of night-vision goggles and/or those equipped with infrared detection devices. PGM capability refers to the ability of aircraft to autonomously employ precision-guided munitions using laser designators.

Source: Departments of the Army, Navy and Air Force.

Forces of Potential Adversaries Are Limited and Likely Slow to Improve

Based on DOD data and information from other government sources, DOD does not believe that potential adversaries possess the capabilities needed to prevent U.S. forces from achieving their military objectives.

Regarding offensive capabilities, although some potential adversaries have significant numbers of aircraft, none has an inventory that approaches that of U.S. forces. Also, their aircraft are generally older and technologically inferior to U.S. aircraft. Some possess significant quantities of conventional theater ballistic missiles, however, these missiles are often relatively unsophisticated. The United States does not currently face a significant threat from enemy cruise missiles, and such capabilities are not likely to increase until the middle of the next decade, if at all.

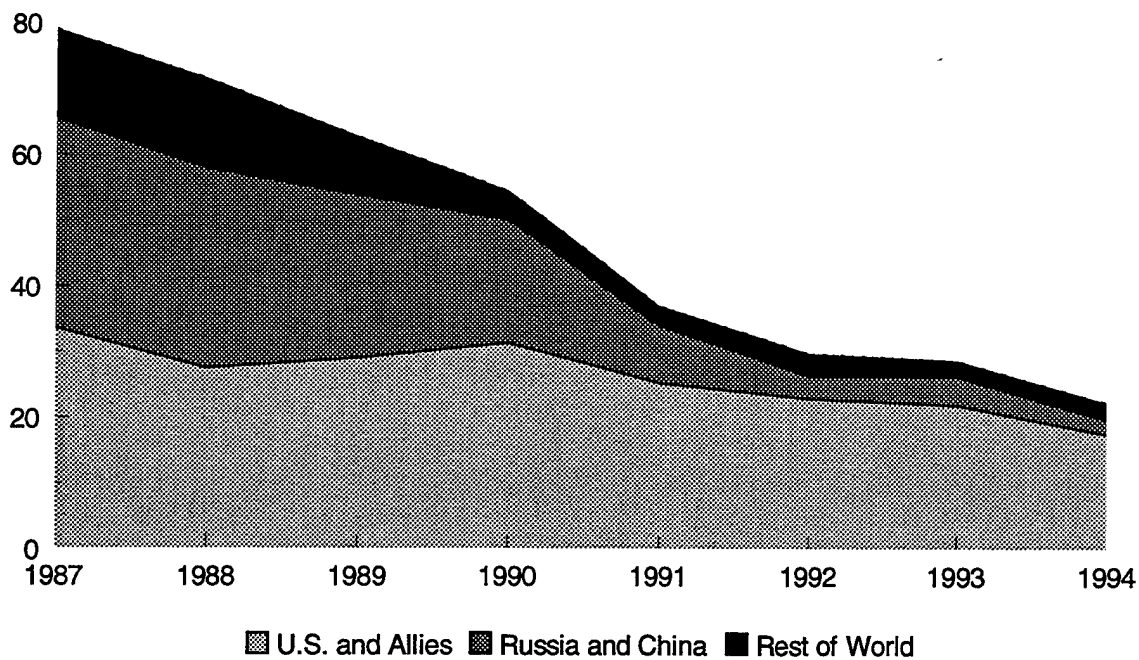
Regarding defensive capabilities, potential adversaries have few modern fighters suitable for air defense. The bulk of their forces are older, less capable aircraft, and information suggests that they will not be adding many modern aircraft. Similarly, they generally rely on older surface-based air defense systems for high-altitude long-range defense. It is believed that potential adversaries are trying to improve their air defense capabilities by upgrading their existing systems, purchasing more modern weapons, and using camouflage and decoys. But, DOD believes that, even with improvements, it is unlikely that potential adversaries could prevent U.S. forces from achieving their objectives.

Several factors are likely to inhibit these nations from improving their capabilities quickly. First, they lack the indigenous capability to develop and produce the advanced systems that would permit them to significantly enhance their capabilities. Therefore, advances will likely be confined to upgrades of existing equipment and the possible acquisition of advanced systems from outside sources.

Second, worldwide arms transfers have fallen significantly in recent years and are not expected to reach former levels any time soon. Unlike the former Soviet Union, Russia normally requires payment for its weapons transfers. As a result, its arms transfers fell from \$29 billion in 1987 to only \$1.3 billion in constant 1994 dollars. From 1992 to 1994, Russia exported a total of 30 fixed-wing combat aircraft to developing countries. China has also reduced its arms exports. The following chart illustrates both the decline in the international arms market between 1987 and 1994 and the dominance of Western suppliers.

GAO Trend in the Worldwide Transfers of Conventional Arms, 1987-1994

Constant 1994 dollars



Source: 1994-1995 World Military Expenditures and Arms Transfers, Arms Control and Disarmament Agency.

Third, the United States and its allies are cooperating to limit conventional arms transfers to certain nations. For example, the United Nations imposed sanctions on several nations in the 1990s. These sanctions prohibited the transfer of weapons or commercial technology that could be used for military purposes to these nations. No measurable arms

transfers were made to these nations after the sanctions were imposed. Similarly, 28 nations signed the Wassenaar Arrangement in December 1995. Under this arrangement, the major arms producers agreed to refrain from exporting arms and dual-use technology to certain nations. In addition, the Missile Technology Control Regime, created in 1987, is specifically designed to limit the transfer of missiles, including cruise and theater ballistic missiles, and related technology. Taken together, the U.N. sanctions, the Wassenaar arrangement, and the Missile Technology Control Regime pose obstacles to potential adversaries seeking to acquire highly-capable weapons and advanced technology.

Fourth, the high technology weapons that could seriously threaten U.S. air power are expensive, no matter what the source. For example, aircraft that are part of the original Eurofighter 2000 tactical aircraft contract are projected to cost about \$75 million each. An advanced air defense system like the Patriot PAC-3 costs over \$100 million for each battery. Given the state of the economies of potential adversaries, it would be difficult for them to purchase many high-cost systems.

To summarize, although the use of air power assets in terrorist actions cannot be ruled out as a potential danger, available information suggests that no potential adversary possesses sufficient capabilities to prevent U.S. forces from achieving their objectives in a military engagement. Efforts by these countries to modernize their forces will likely be inhibited by declines in the post-Cold War arms market, national and international efforts to limit the proliferation of conventional arms, and the high cost of advanced weapons.

DOD Faces Challenges in Modernizing Its Combat Air Forces

Although U.S. air power capabilities are already substantial—particularly in relation to the threat, DOD has planned major air power modernization programs in some areas to attain even greater capabilities. These modernization plans center on several very expensive aircraft development programs—the Navy's F/A-18E/F fighter/attack aircraft; the Air Force's F-22 air superiority fighter; the Army's Comanche armed reconnaissance helicopter; and the Joint Strike Fighter.

Table 1 summarizes the estimated costs of DOD's major air power modernization programs. We have not included the Joint Strike Fighter in this table because the program is still being defined and cost estimates are preliminary. However, current plans are to develop and procure about 2,800 new aircraft for the Air Force, Navy, and Marine Corps. According to

DOD, the unit flyaway cost of the Joint Strike Fighter is expected to range from about \$29 million to \$40 million (expressed in 1996 dollars) depending on the service model procured and the contractor selected. If these plans proceed, the Joint Strike Fighter would become DOD's costliest aircraft modernization program.

Table 1: Estimated Costs of Major Air Power Investment Programs (as of Dec. 31, 1995)^a

Then-year dollars in billions

Program	Through FY 1996	FY 1997 to end of program	Total
F/A-18E/F	\$4.9	\$76.1	\$81.0
F-22	14.0	56.1	70.1
Longbow Apache	1.9	6.4	8.3
Comanche ^b	3.1	41.7	44.8
B-1 bomber modifications	1.3	2.5	3.8
AV-8B remanufacture	0.5	1.8	2.3
Weapons ^c	23.9	20.9	44.8
Total	\$49.6	\$205.5	\$255.1

^aExcludes Joint Strike Fighter.

^bData as of June 1996.

^cIncludes Tomahawk, Longbow Hellfire, and Advanced Medium Range Air-to-Air Missiles; Army Tactical Missile System; Joint Direct Attack Munitions; and Joint Stand-Off and Sensor-Fused Weapons.

Source: Departments of the Army, Navy and Air Force.

DOD faces a major challenge in attempting to pay for all of the programs as planned. To illustrate, annual funding to procure new planned fighter aircraft alone would need to average about \$8 billion in real terms at least through 2014. This appears to be unrealistic. The defense budget has been declining in real terms since 1985, and both the administration and the Congress project relatively flat top line defense budgets in real terms over the next 6 years. As the nation attempts to achieve a balanced budget, it may be difficult to increase overall defense spending.

In advising the Secretary of Defense on DOD's plans, the Chairman of the Joint Chiefs of Staff recommended last year that the Secretary increase annual procurement funding to \$60 billion by 1998 to better recapitalize U.S. military forces. This compares to the fiscal year 1997 procurement budget request of \$39 billion. In making this recommendation, he noted that tactical aircraft procurement plans call for much greater than

expected resources in the outyears. The Secretary has said that he will attempt to achieve the needed funding for modernization by seeking higher funding levels from the Congress and by achieving savings from outsourcing, acquisition reform, and infrastructure reductions. But, as noted, higher defense budgets appear unlikely, and savings from outsourcing and acquisition reform are uncertain. Moreover, we recently reported that DOD has not yet projected any significant net infrastructure savings through fiscal year 2001.²

To put the current funding dilemma into perspective, it should be noted that the current level of investment that DOD plans is more consistent with the former Cold War era than with the current security environment. Based on our analysis of defense spending trends and projections, we have concluded that DOD plans to spend almost as much over the next 18 years to execute its current plans for fighter aircraft as it spent over the last 18 years of the Cold War. One has to ask: With the Cold War ended, should the United States be spending as much on tactical aircraft over the next 18 years as it did during the massive defense build-up of the early to mid-1980s?

To summarize, DOD has planned investments that are unachievable within likely future budgets and appear to be inconsistent with the current security environment. As I will discuss in the following sections, there are good reasons for DOD to reconsider a number of its planned investments. If it were to modify its current plans, the mismatch between programs and budget could be reduced.

Major Air Power Investment Decisions Are Not Based on Joint Assessments

Our work shows that DOD is proceeding with major air power programs without having sufficiently assessed its joint mission requirements to meet post-Cold War needs. Without such assessments, the Secretary of Defense does not have the information needed to determine the need for and priority of planned investments. In our mission reviews, we found that major force structure and program decisions had been made without completed analyses of the services' joint qualitative and quantitative requirements and aggregate capabilities to conduct these missions. As a result, a definitive answer as to whether planned investments are needed is not clear. However, past GAO work and information developed on our six mission reviews suggest that DOD should reexamine some planned investments for several reasons.

²Defense Infrastructure: Budget Estimates for 1996-2001 Offer Little Savings for Modernization (GAO/NSIAD-96-131, Apr. 1996).

First, current forces in some mission areas already provide combatant commanders with formidable, often overlapping and redundant capabilities. The total inventory of assets that can be used to interdict enemy ground targets illustrates this condition. As shown by table 2, each of the services have extensive inventories of weapons that can be used for interdiction.

Table 2: DOD's Multiple Assets to Interdict Enemy Ground Targets

Service	Category	Asset	1996 Inventory
Air Force	Fixed-wing aircraft	F-15E	203
		F-16	1,450
		F-117	54
		A/OA-10	369
		B-1B	95
		B-2	17
		B-52	66
Navy and Marine Corps	Fixed-wing aircraft	A-6E	63
		AV-8B	184
		F-14A/D	323
		F/A-18	806
	Helicopters	Cobra	176
	Missiles	Tomahawk	2,339
Army	Helicopters	Apache	798
		Cobra/Kiowa Warrior	758
	Missiles	ATACMS	1,456

Source: Departments of the Army, Navy, and Air Force.

Based on our analysis of DOD's targeting data, the services collectively have at least 10 ways to hit 65 percent of the thousands of expected ground targets in two major regional conflicts. In addition, service interdiction assets can provide 140 to 160 percent coverage for many types of targets. Despite numerous overlapping interdiction capabilities, DOD is investing about \$200 billion to provide new and enhanced interdiction capabilities over the next 15 to 20 years. This figure excludes the Joint Strike Fighter program, which will further enhance these capabilities.

Second, we believe that programs initiated in response to Cold War threats should not proceed without being reexamined in light of the changed

security environment. For example, the Air Force initiated the F-22 program in 1981 to meet the projected Soviet threat of the mid-1990s. Under this program, the Air Force would acquire 438 new F-22 air superiority fighter aircraft. Now, instead of confronting thousands of modern Soviet fighters, U.S. air forces are likely to confront potential adversaries having few fighters that could successfully challenge the F-15—the U.S. frontline fighter. Similarly, the Air Force procured B-1B bombers during the 1980s to acquire long-range, nuclear-capable aircraft as quickly as possible. With the Cold War requirement for nuclear-capable bombers reduced, DOD now plans to spend \$2.5 billion to modify its fleet of 95 B-1B bombers to deliver conventional weapons. This investment is being made despite the already substantial capability to destroy ground targets through other means. The annual operation and support cost of the B-1B fleet is \$920 million.

Third, there appear to be less costly alternatives to some highly expensive modernization programs. For these expensive programs, the payoff in terms of added mission capability—considering the investment required—does not appear to be “clear and substantial” as mandated by the National Military Strategy. For example, the Navy F/A-18E/F’s expected range, carrier recovery payload, and survivability—key areas that DOD cited in justifying the F/A-18E/F—will be only marginally improved over that of the less costly F/A-18C/D model. Cost estimates for these planes vary widely depending on what costs are included. However, we have recently reported that, based on the Marine Corps’ decision not to purchase the F/A-18E/F, the unit recurring flyaway cost of this aircraft could rise to as much as \$53 million. This compares to an estimated unit cost of \$28 million for the F/A-18C/D, which has been improved in capability.

Less costly alternatives to the Army’s Comanche helicopter also appear to exist. According to Army program officials, the total estimated program cost of the Comanche program is about \$45 billion. Yet three existing helicopters—the Marines’ Super Cobra and the Army’s Longbow Apache and Kiowa Warrior already perform many of the functions that would be assigned to the Comanche. The Super Cobra can already fulfill armed reconnaissance and attack missions, and planned enhancements will increase its speed and rate of climb. The Longbow Apache performs many of the missions intended for the Comanche. Many users believe the lethality, low observability, deployability, and speed of the Kiowa Warrior when combined with certain upgrades or doctrinal changes would resolve many of the deficiencies the Comanche is expected to resolve.

In short, a definitive answer as to the necessity of planned investments is not possible without knowing how aggregate service capabilities match up against joint warfighting requirements. However, based on our work, we believe that DOD's planned investments may be adding little military capability in some mission areas and, in fact, may not be warranted by the current and projected security environment. The extremely high cost of air power investments makes it important for DOD to reexamine each program in relation to joint requirements and existing capabilities and within the context of the post-Cold War environment.

Decisions on Air Power Programs and Priorities Require Comprehensive Joint Assessments

Through key legislation, the Congress has sought to better integrate the military services, provide a channel for independent military advice to the Secretary of Defense, and strengthen the joint orientation of the Department. Although DOD has improved its joint orientation in many respects, the services continue to heavily influence defense decisions, particularly those related to investments in weapons. Military advice from a joint perspective is important to help the Secretary objectively weigh the merits not only of combat air power but also of other defense programs.

The Goldwater-Nichols Department of Defense Reorganization Act of 1986 made the Chairman, JCS responsible for providing military advice from a joint perspective to the Secretary of Defense. As principal military adviser to the Secretary, the Chairman, Joint Chiefs of Staff (JCS) is expected to advise the Secretary on the requirements, programs, and budgets of the military services. The act directs the Chairman to (1) provide advice on the priorities of requirements identified by the regional commanders in chief (CINCPAC), (2) determine the extent to which service program recommendations and budget proposals conform with the CINCPAC's priorities, (3) submit alternative program recommendations and budget proposals within projected resource levels to achieve greater conformance with these priorities, and (4) assess the military requirements for defense acquisition programs. The National Defense Authorization Acts for Fiscal Years 1993 and 1996 further directed the Chairman, JCS to examine how DOD might eliminate or reduce duplicative capabilities and authorized him, through the Joint Requirements Oversight Council, to assess military needs from a joint warfighting military perspective.

Although progress is being made, we believe that the Chairman, JCS needs to do more to effectively carry out these responsibilities. For example, DOD established a joint warfighting capabilities assessment process, under which assessment teams are examining issues related to 10 selected

mission areas. Established in 1994 to support the Joint Requirements Oversight Council, these assessment teams have identified ways to improve joint warfighting and have proposed other operational improvements. However, the teams so far have had little impact in reducing unneeded overlaps and duplication in existing capabilities. Also, they have not been directed to delve into more controversial issues related to U.S. air power, such as assessing alternative ways to modernize U.S. air power capabilities.

The Department must conduct broader, more comprehensive assessments if the Secretary is to have the information he needs to make the difficult tradeoff decisions that may be required. At a minimum, we believe that such assessments should, for each mission area,

- assess total joint warfighting requirements;
- inventory aggregate service capabilities, including the full range of available assets;
- compare aggregate capabilities to joint requirements to identify excesses or deficiencies, taking into consideration existing U.S. capabilities and those of potential adversaries;
- assess the relative merits of retiring alternative assets, reducing procurement quantities, or canceling acquisition programs where excesses exist or where substantial payoff is not clear; and
- determine the most cost-effective means to satisfy deficiencies.

Conducting assessments in this way could help the Secretary of Defense better decide what priority should be given to competing programs, whether programmed investments should continue to be funded, and whether new investments should be made.

Conclusions

In conclusion, I would underscore that we believe that it is important that DOD make air power investments that are matched to identified needs. Funds spent on programs that add little needed capability at very high cost when existing capabilities may already be sufficient to meet future challenges are, in our opinion, funds not well spent.

To be in a position to make sound investment decisions, DOD needs to closely examine both its combat air power force structure and its modernization plans, which are rooted in the Cold War era. The high cost of modernizing the force requires that DOD seek the greatest value in its investments given current budget projections. Overlapping and often

redundant air power capabilities provide combatant commanders with desirable operational flexibility to respond to a wide variety of circumstances. The question is whether, in the post-Cold War era, the United States needs, or can afford, the current levels of overlap and redundancy.

The Secretary needs better information from a joint perspective to help decide what priority should be given to competing programs, whether programmed investments should continue to be funded, and whether new investments should be made. The urgent need for such assessments is underscored by the reality that enormous outlays will be required in the not-too-distant future to finance DOD's combat air power programs as currently planned.

Our work has led us to conclude that the Secretary of Defense needs broader more comprehensive assessments in key mission areas if he is to make the difficult decisions that he is likely to face. However, certain long-standing obstacles must be overcome if the key challenges related to air power are to be met head on. The Chairman, JCS must be a strong advocate for the joint perspective as the Goldwater-Nichols legislation intended. The interests of the U.S. military as a whole must be placed above the interests of the individual services. And, if circumstances change and program adjustments are needed, the Secretary and the Chairman, JCS must be willing to challenge the strong proponents that develop around major acquisition programs. If DOD is to shape its force smartly within the bounds of likely budgets, existing levels of redundancy in capability must be questioned, and no program, once begun, should be considered irreversible.

Mr. Chairman, this concludes my prepared statement. I would be happy to address any questions you or other members of the subcommittees may have.

Selected GAO Reports Related to This Testimony

Navy Aviation: F/A-18E/F Will Provide Marginal Operational Improvement at High Cost (GAO/NSIAD-96-98, June 1996).

Combat Air Power: Assessment of Joint Close Support Requirements and Capabilities Is Needed (GAO/NSIAD-96-45, June 1996).

Combat Air Power: Reassessing Plans to Modernize Interdiction Capabilities Could Save Billions (GAO/NSIAD-96-72, May 1996).

Combat Air Power: Funding Priority for Suppression of Enemy Air Defenses May Be Too Low (GAO/NSIAD-96-128, Apr. 1996).

Navy Aviation: AV-8B Harrier Remanufacture Strategy Is Not the Most Cost-Effective Option (GAO/NSIAD-96-49, Feb. 1996).

Aircraft Requirements: Air Force and Navy Need to Establish Realistic Criteria for Backup Aircraft (GAO/NSIAD-95-180, Sept. 1995).

B-2 Bomber: Status of Cost, Development, and Production (GAO/NSIAD-95-164, Aug. 1995).

Longbow Apache Helicopter: System Procurement Issues Need to be Resolved (GAO/NSIAD-95-159, Aug. 1995).

Weapons Acquisition: Precision Guided Munitions in Inventory, Production, and Development (GAO/NSIAD-95-95, June 1995).

Comanche Helicopter: Testing Needs to Be Completed Prior to Production Decisions (GAO/NSIAD-95-112, May 1995).

Tactical Aircraft: Concurrency in Development and Production of F-22 Aircraft Should Be Reduced (GAO/NSIAD-95-59, Apr. 1995).

Cruise Missiles: Proven Capability Should Affect Aircraft and Force Structure Requirements (GAO/NSIAD-95-116, Apr. 1995).

Army Aviation: Modernization Strategy Needs to Be Reassessed (GAO/NSIAD-95-9, Nov. 1994).

Tactical Aircraft: F-15 Replacement Is Premature as Currently Planned (GAO/NSIAD-94-118, Mar. 1994).

Strategic Bomber: Issues Relating to the B-1B's Availability to Perform
Conventional Missions (GAO/NSIAD-94-81, Jan. 1994).

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